Plastic Service Group

Operating Instructions

Project Setup of Component MPI02

Temperature Control System

flexotemp

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Translation of original
operating instructions

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1 Introduction

This operating instructions introduces the multi loop control system flexotemp® with its components. The system structure and the project planning/configuration is described by practical examples completely. The necessary steps, to work with the system safely and quickly, can easily be derived by these specific applications.

Multi loop temperature control system flexotemp®
based on the controller and open loop control units

flexotemp® MCU 128
flexotemp ® PCU 128
flexotemp® PCU 48
flexotemp® PCU 24
flexotemp® PCU 128 PNIO
flexotemp® PCU 48 PNIO
flexotemp® PCU 24 PNIO

allows an optimal adaptation for each requirement.

Consequent modular design of intelligent IOs,
the possibility of peripheral configuration in I/O nodes,
universal function range
are guarantors for this.

The available digital interfaces

- serial data interface COM
- CANopen slave CAN1 for controller internal network and network to superior control
- CANopen master CAN2 (field bus) for external I/O modules
- Profibus DP interface L2-DP
- Ethernet interface TCP/IP

provide easy internal and external connection possibility.

PROFINET IO is available for the controller and open loop unit labeled with the mnemonic PNIO . The interfaces are:

- CANopen master CAN2 (field bus) for external I/O modules
- Ethernet interface TCP/IP
- Ethernet interface PROFINET IO

The ways of communication and the system structure are defined by the project planning and configuration tool flexotempMANAGER.

These directions assist, both in case of the initial installation and operational startup, and in case of changes and adaptations to existing control systems. Status and fault signals are described and remedial actions proposed for their removal.

The protocol descriptions for PSGII, PSGII Ethernet (ASCII), Profibus DP, Modbus, Modbus TCP/IP, Profibus DPEA, CANopen, Send/Receive, PROFINET IO are not a component part of the operating manual. You are provided with these on request or directly as a download from the home page of PSG Plastic Service GmbH (www.psg-online.de).

1.1 Typographical Conventions

Symbols and conventions are used in this manual for faster orientation for you.

Symbols

	Caution	With this symbol, references and information are displayed which are decisive for the operation of the device. In case of non-compliance with or inaccurate compliance there can result damage to the device or injuries to persons.
	Note	The symbol refers to additional information and declarations, which serve for improved understanding.
	Example	With the symbol, a function is explained by means of an example.
	Reference	With this symbol, information in another document is referred to.
	FAQ	Here FAQ (Frequently Asked Questions) are answered.
↗		Cross references are marked with the character f. In the pdf version of the document the objective of the cross reference is reached via the link.
`Equations`		Calculation specifications and examples are represented in this way.
<View>		Menu points (e.g. view) are represented in this way.
|Project|		Windows (e.g. project) are represented in this way.
n.a.		Not applicable, not existing

1.2 Additional and continuative documents

Parameters	Information on this topic are in the operating instructions **Temperature Control System flexotemp® Parameter** zu entnehmen.
Operation	Information on this topic are in the operating instructions **Project Planning and Configuration Tool flexotempMANAGER Operation** zu entnehmen.
Protocol PSG II	Information on this topic are in the protocol description **PSG II** and the corresponding object lists.
Protocol PSG II Ethernet (ASCII)	Information on this topic are in the protocol description **PSG II Ethernet (ASCII)** and the corresponding object lists.
Protocol Profibus DP	Information on this topic are in the protocol description **Profibus DP** and the corresponding object lists.
Protocol Modbus	Information on this topic are in the protocol description **Modbus** and the corresponding object lists.
Protocol Modbus/TCP	Information on this topic are in the protocol description **Modbus/TCP** and the corresponding object lists.
Protocol Profibus DPEA	Information on this topic are in the protocol description **Profibus DPEA** and the corresponding object lists.
Protocol PROFINET IO	Information on this topic are in the protocol description **PROFINET IO** and the corresponding object lists.
Protocol CANopen	Information on this topic are in the protocol description **CANopen** and the corresponding object lists.
Data sheet	The data sheets can be accessed in Internet by www.psg-online.de, and/or are available under menu bar →<Extras> →<Options> →<Update> in flexotempMANAGER in the project view below each flexotemp® component (see operating instructions **Project Planning and Configuration Tool flexotempMANAGER Operation**).

2 Prerequisites

For installation and project planning of flexotemp® components, the following prerequisites must be fulfilled:

the project planning and configuration tool flexotempMANAGER is installed on a PC as standard installation

the flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.

Are other communication concepts employed, one has to answer the following questions -

where is the flexotempMANAGER running?
where is the communication server (PSGCommServer) running?
how are the controllers connected?

In chapter Communication Concepts of flexotempMANAGER in the operating instructions Project Setup and Configuration Tool flexotempMANAGER Operation (see ↗Prerequisites) is described, which settings must be made in the flexotempMANAGER for PSGCommServer and master components (MCU/PCU).

Information on addressing an CAN-bus termination please see the operating manual for Temperature Control System flexotemp® , System Configuration & Project Setup (see ↗Prerequisites).

Further details, how the project planning and configuration tool flexotempMANAGER should be used and operated, as well as further explanations of the parameters, please see the operating instructions (see chapter ↗Prerequisites).

3 Examples

In the following example a component is described, with the target, to combine it with other flexotemp® components to a operational project and implement it in the project setup/configuration in flexotempMANAGER.

Each example is divided by the following points

- **Necessary components**: List of the required flexotemp® components for the project
- **Installation**: the configuration and wiring of the flexotemp® components
- **Interface connections**: establishing of connection between flexotemp® components with flexotempMANAGER serial/per Ethernet
- **Project planning and configuration**: the settings for the project in flexotempMANAGER, the parameters to configure, inclusive addressing of components

The necessary steps for own applications, to work with the system safely and quickly, can easily be derived by these exemplary configuration and project planning.

4 Component MPI02

The component Melt Pressure Input flexotemp® MPI02 determines 2 measured value of standard strain gauge pressure transducers.

The MPI02 is an autarkic CANopen node module, that determines, analyzes and outputs all in-/outputs

- 2 Measurement inputs
- 4 Alarm outputs
- 2 Analog outputs

selbstständig erfasst, auswertet und ausgibt.

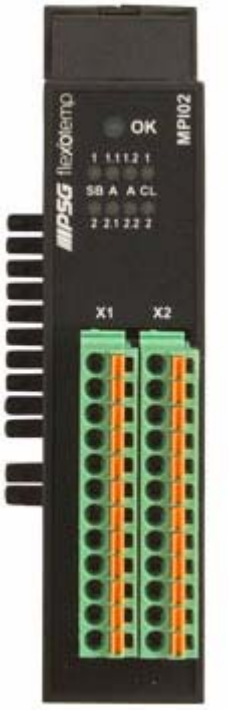
The alarm monitoring determines

- 8 Limit values ?(absolute pressure/differential pressure)
- 1 Hysteresis
- Peak Detection
- System error
- Errors in measuring circuit
- Calibration error

The 4 alarm outputs and the 2 analog outputs (0...20mA/ 4...20mA) can freely be assigned to the measurement inputs (absolute-/differential pressure).

On the alarm outputs combinations of alarms can be configured.

Each channel is monitored permanently by sensor break and error on current loop. LED's display this and the status of the 4 alarm outputs.



The signal analysis is directly on the module; no measured values and status information is led to the superior flexotemp controller unit. By the Direct IO's the status

- of inputs
- of the module

and of the inputs itself can be communicated with a superior PLC.

4.1 Necessary components

The following flexotemp® components are required:

- 1 Peripheral Control Unit flexotemp® PCU (controller) (in the example PCU 48 is used)
- 1 Melt Pressure Input flexotemp® MPI 02

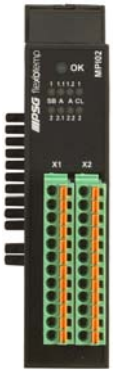
4.2 Installation

At all installation work, note the current data sheets for each flexotemp® component.

The data sheets can be accessed in Internet by www.psg-online.de, and/or are available under menu bar →<Extras> →<Options> →<Update> in flexotempMANAGER in the project view below each flexotemp® component (see operating instructions Project Setup and Configuration Tool flexotempMANAGER Operation**,** see ↗Ergänzende und weiterführende Dokumente).

The flexotemp® components are added from the right side, starting from the controller, as shown. The cross connections click into place for automatic parallel bus contact in the housing, that builds a block of flexotemp® components.

Power unit



Output voltage 24 VDC

PCU 48

←MPI02

←click into place

Rated voltage	18...30 VDC	18...30 VDC
Power consumption	6 W	< 5 W
	See current data sheets	

Starting with the power unit, the flexotemp® components must be connected with the 24 VDC power supply.

Component	PCU 48	MPI02
Terminal	X1	<n.a.>
	See current data sheets	

The in-/outputs of the flexotemp® components must be wired accordingly.

Component	PCU 48	MPI02
Terminal	<n.a.>	X1, X2
	See current data sheets	

4.3 Interface connection

4.3.1 Serial

A serial connection to PC, where flexotempMANAGER is installed, is created from the flexotemp® component PCU48.

	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
	Prerequisite	flexotemp® component PCU48 has the option COM interface RS232/RS422.
	PC side	
	Interface converter	Due the fact, that a PC has no standard RS485 interface, an interface converter is required (see data sheet SK232485). Take care of the pin assignment and the correct connection.
	Controller side	The RS232 cable must be connected to the connection X5 COM of the flexotemp® component PCU48.
	PSGCommServer	Create a serial interface (operating instructions Project setup and Configuration Tool flexotempMANAGER Operation chapter 3.1.2, see ↗Ergänzende und weiterführende Dokumente).
	flexotempMANAGER	Check on the side of the communication server, that the setting <The PSGCommServer runs on the same computer as flexotempMANAGER> is selected. By the key <Read setting of interface manually by PSGCommServer>, the settings of the serial interface are taken from the previous step and can be selected.

4.3.2 Ethernet

A connection to PC, where flexotempMANAGER is installed, is created from the flexotemp® component PCU48 per Ethernet.

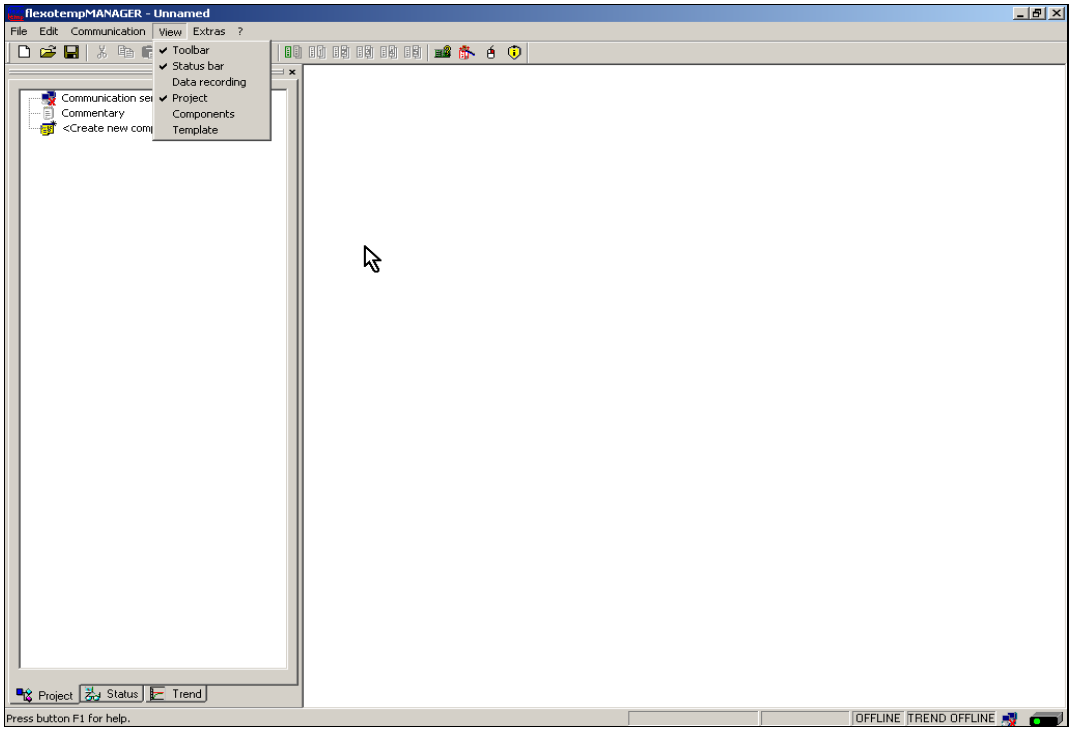
	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
	PC side	
	LAN connection	For direct coupling from PC and controller, use a cross-over cable. Using a Fast-Ethernet-Switch, use a standard Ethernet network cable.
	Controller side	The Ethernet network cable must be connected to the connection X2 TCP/IP of the flexotemp® component PCU48.
	flexotempMANAGER	Check on the side of the communication server, that the setting <The PSGCommServer runs on the same computer as flexotempMANAGER> is selected.

4.4 Project setup and configuration

Further details, how the project planning and configuration tool flexotempMANAGER should be used and operated, as well as further explanations of the parameters, please see the operating instructions (see chapter ↗Ergänzende und weiterführende Dokumente).

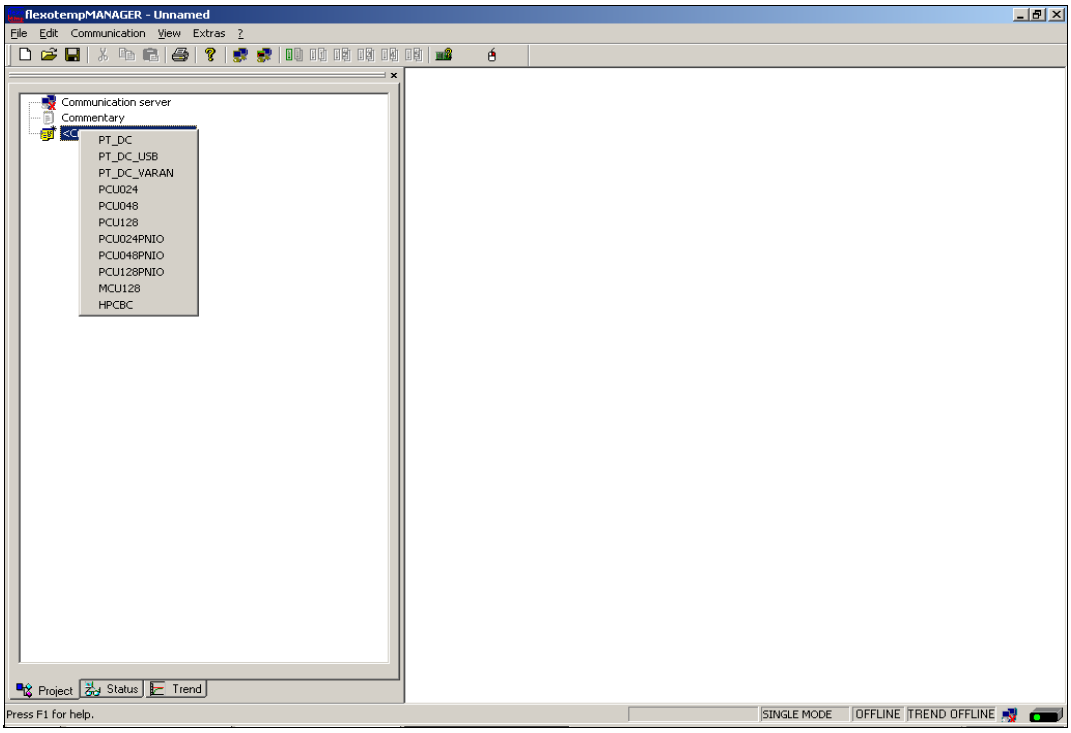
4.4.1 Create controller and components

	Prerequisite	flexotempMANAGER is installed on PC.
	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
		The flexotemp® components are configured in the order shown in ↗Installation (from the left, starting from the controller, to the right).
	PC side	
flexotempMANAGER start		Symbol bar: <View> Symbol bar, Status bar, Project are active. Menu bar: <File> <New>. No project (<Unnamed>) is displayed.



Create controller

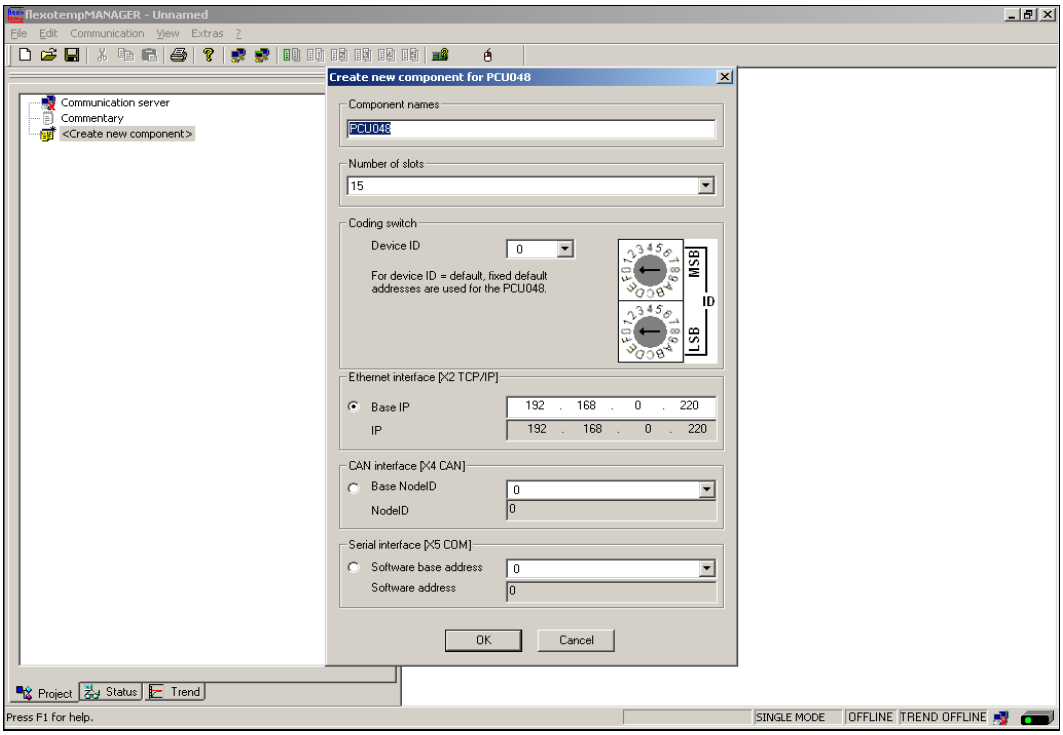
Create controller PCU048 by <Create new component>.



Address setting

The setting of the device ID on the coding switch here and on the rotary switch on the controller must fit.

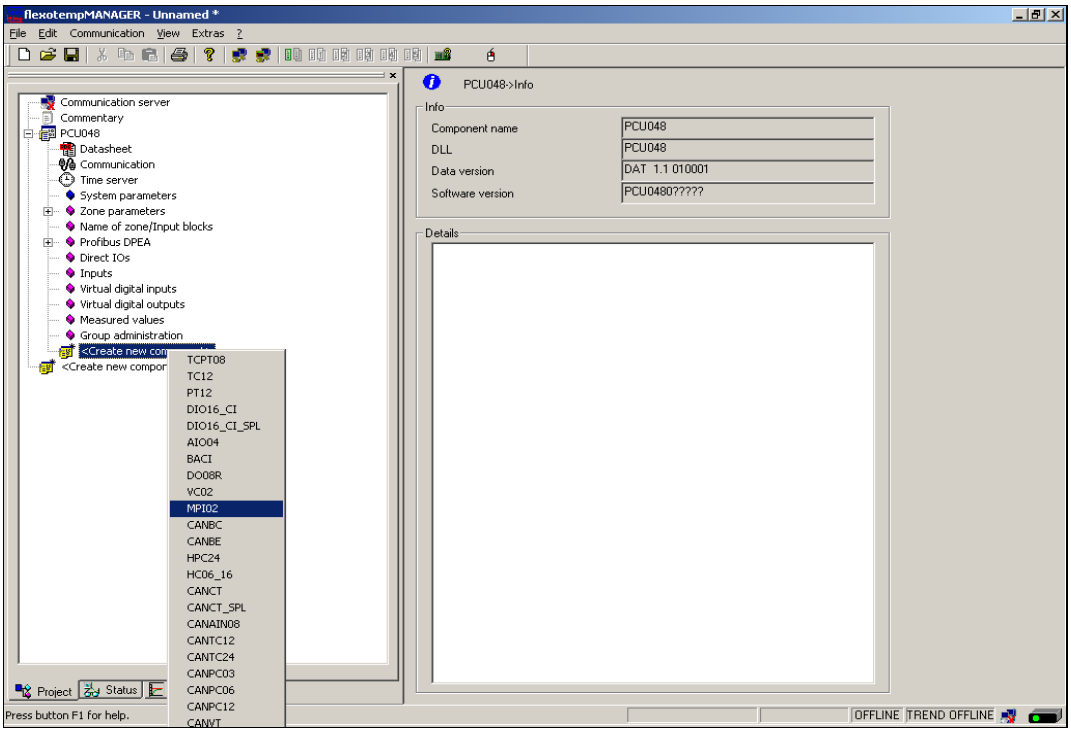
At communication by Ethernet, the PC must have the same subnet like the controller (subnet mask: 255.255.255.0).



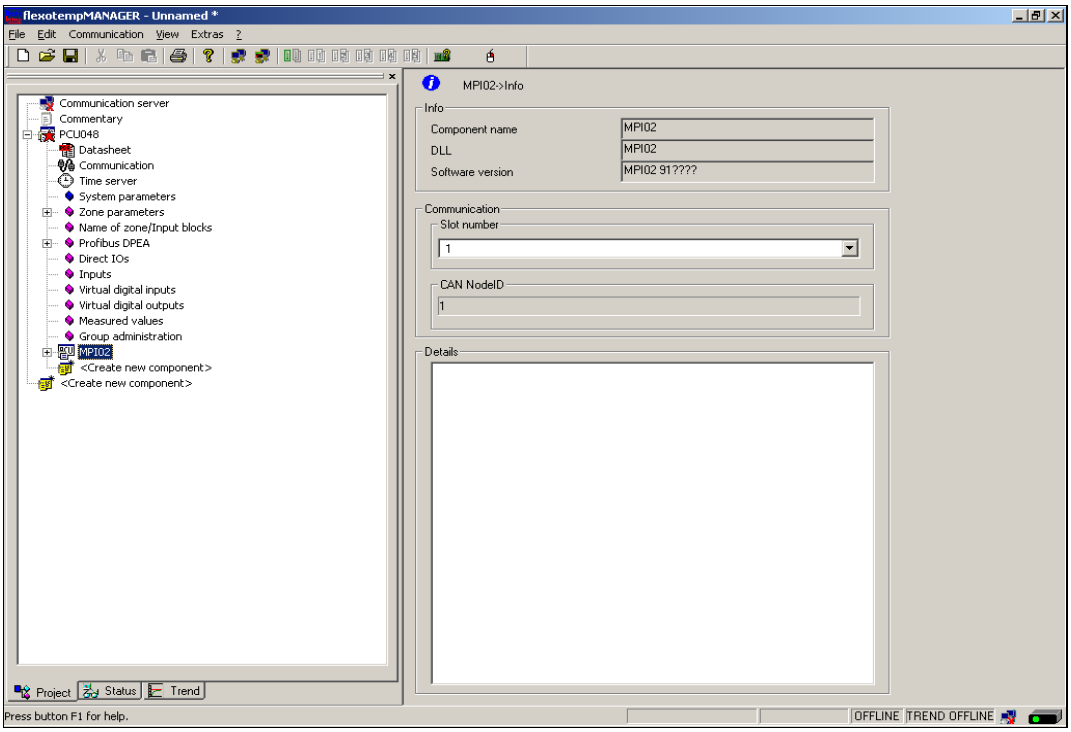
Controller PCU048 is created.

Create further components

Beneath the controller, the further component MPI02 is selected out of a list and created.



The controller and the component MPI02 is created in the project.



The project is stored with the name Example_MPI02 and transferred to the controller.

4.4.2 Configure component

The component is described by menu item Parameter, Wizard/Configurator, Inputs X1 and Calibration Inputs.

Parameters for the component MPI02 can be entered by

- a Wizard (guided data entry), with a predefined model for parameterization of pressure transducer and following calibration
- parameters directly
- a configurator

By the context menu of component MPI02 (select the component in the project and secondary mouse button) the original setting of the parameters can be reset by <Write delivery status> (operating instructions Temperature Control System flexotemp® Parameter see ↗Additional and continuative documents).

4.4.3 Configure component by Wizard

By configuration by Wizard, a predefined model for parameterization of pressure transducers is used. Only

- the measurement range of the pressure transducer
- a correction of the pre- and/or main alarms (when not full scale range)
- low-active, storing
- display of sensor break, calibration error

can be set by the operator, the remaining parameters are defined by default values.

A calibration follows.

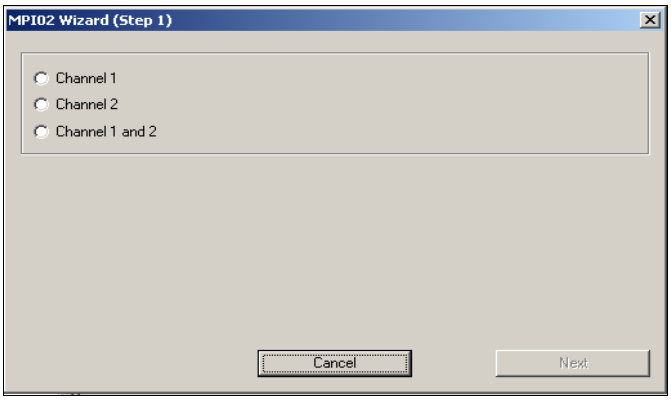
To set other parameters, see ↗Configure component by parameter and/or configurator.

By **Wizard**

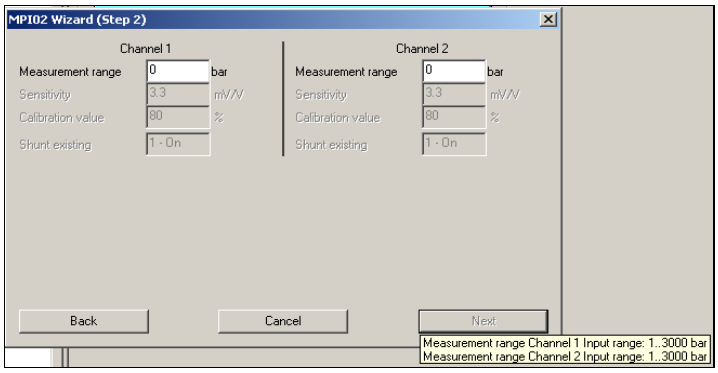
MPI02 Wizard

Selection of channel 1 or channel 2 or both channels.

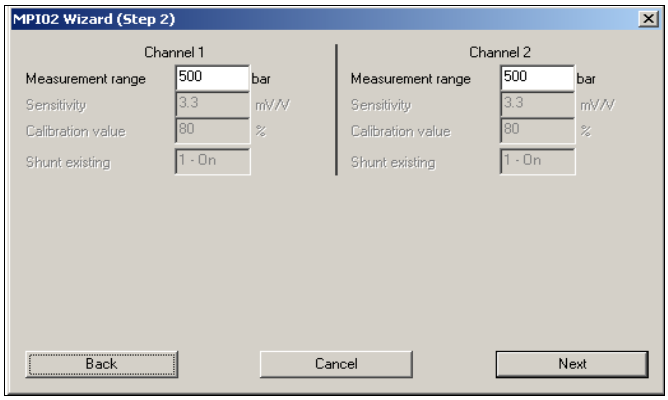
Is only one channel selected, the other channel is removed from the display.



The measurement range must be defined for the selected channels (see messages)

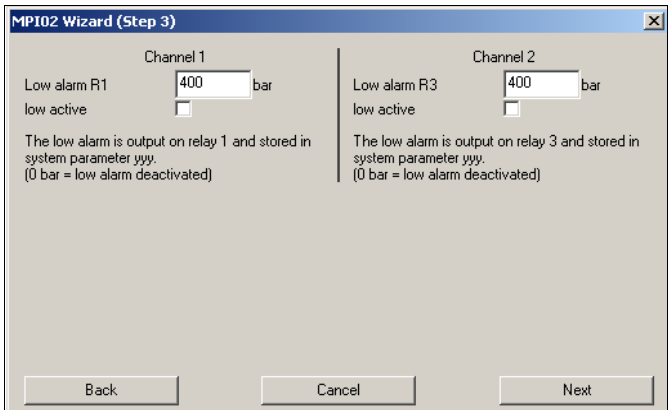


The measurement range is adjusted to 500 bar for channel 1/2 in the example.



Setting of pre-alarm

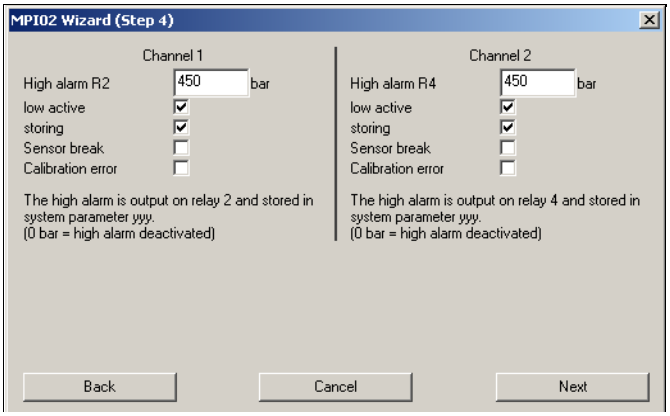
The pre-alarm is adjusted to 400 bar for channel 1/2.


MPI02 Wizard (Step 3)
Channel 1
Low alarm R1 400 bar
low active
The low alarm is output on relay 1 and stored in system parameter yyy.
(0 bar = low alarm deactivated)
Channel 2
Low alarm R3 400 bar
low active
The low alarm is output on relay 3 and stored in system parameter yyy.
(0 bar = low alarm deactivated)
Back
Cancel
Next

Please note the specifications in the menus, where alarms are output and parameters are stored.

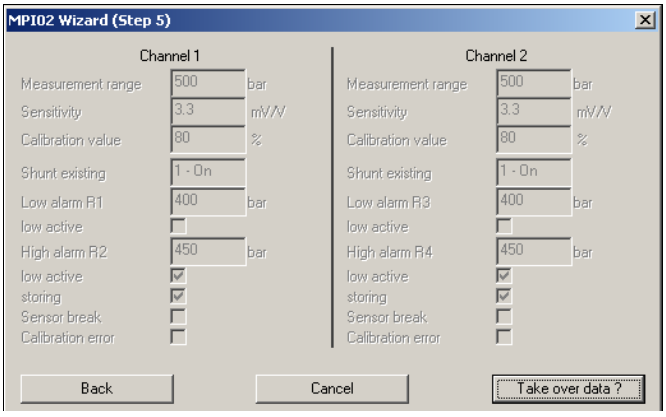
Setting of main alarm

The main alarm is adjusted to 450 bar for channel 1/2.



Please note the specifications in the menus, where alarms are output and parameters are stored.

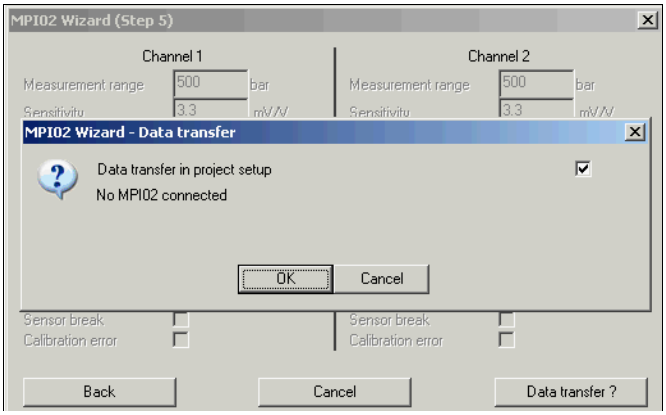
All entries are finally listed and can be transferred into the project setup and to the component by <Data transfer?>, when a component is connected.



In this example the data can only be transferred into project setup. flexotempMANAGER has determined, that no component is connected, where the data can be transferred to.

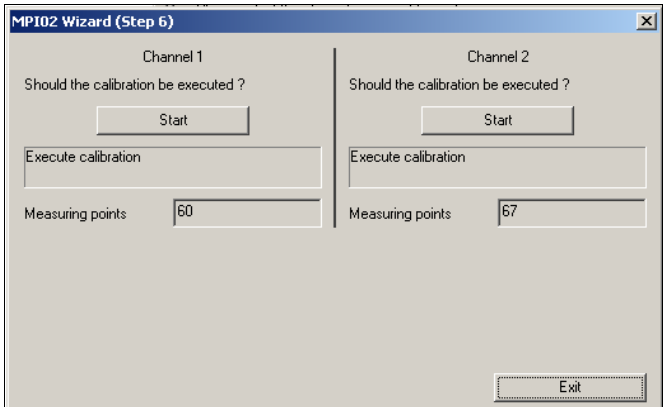
The operator can remove the check to change the pre-selection by the program.

The dialog is finished after this step, because no component is connected.



Is a component connected, and the data transfer to component finished successfully, the calibration of MPI02 can be started afterwards.

Actions and messages of status see ↗Calibration of connected pressure transducer.



4.4.4 Configure component by parameter and/or configurator

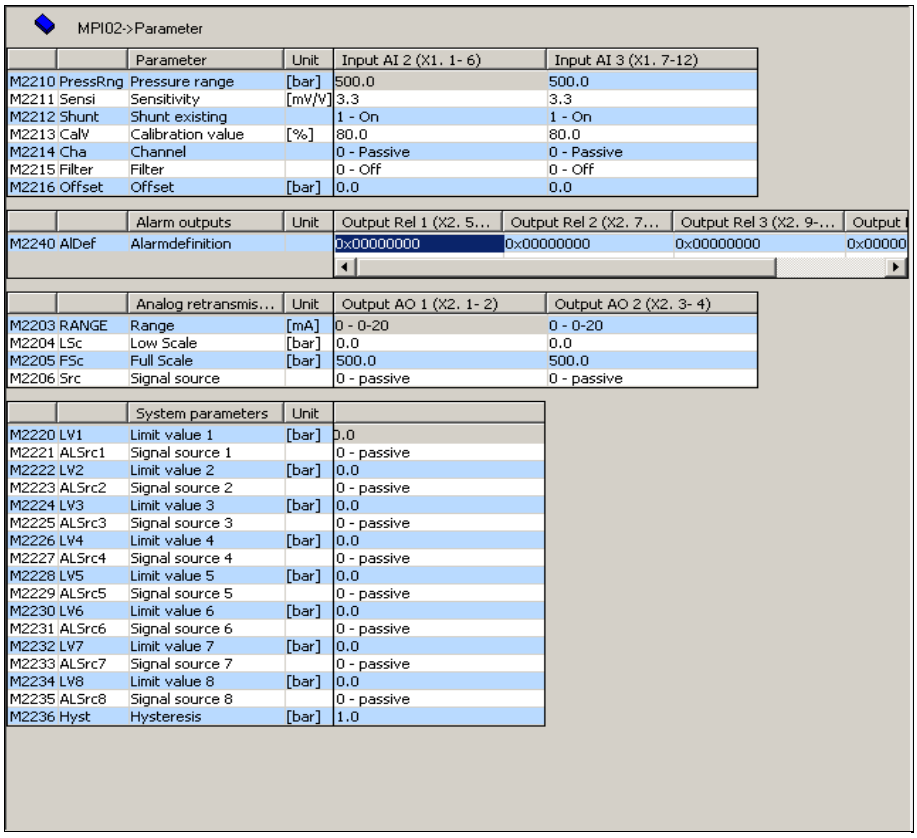
	By **Parameter**	By **Configurator**
↗Configure measurement input 1/2	M2210...M2216 for AI 1/2	Measurement input 1/2
↗Specify limit value and alarm output on relay	M2220, M2221 or M2222, M2223 or ... M2234, M2235 M2240 for Rel1...4	Alarm output n (n defines relay 1...4)
↗Configure analog output 1/2	M2203...M2206 for AO 1/2	Analog outputs 1/2

For a detailed description of the single parameters see operating instructions ↗Informationen zu diesem Thema sind der Bedienungsanleitung Temperaturregelsystem flexotemp® Parameter.

By Parameter

A list with all parameters is displayed.

<View> <Project> Component MPI02 - Parameter



MPI02->Parameter

		Parameter	Unit	Input AI 2 (X1. 1- 6)	Input AI 3 (X1. 7-12)
M2210	PressRng	Pressure range	[bar]	500.0	500.0
M2211	Sensi	Sensitivity	[mV/V]	3.3	3.3
M2212	Shunt	Shunt existing		1 - On	1 - On
M2213	CalV	Calibration value	[%]	80.0	80.0
M2214	Cha	Channel		0 - Passive	0 - Passive
M2215	Filter	Filter		0 - Off	0 - Off
M2216	Offset	Offset	[bar]	0.0	0.0

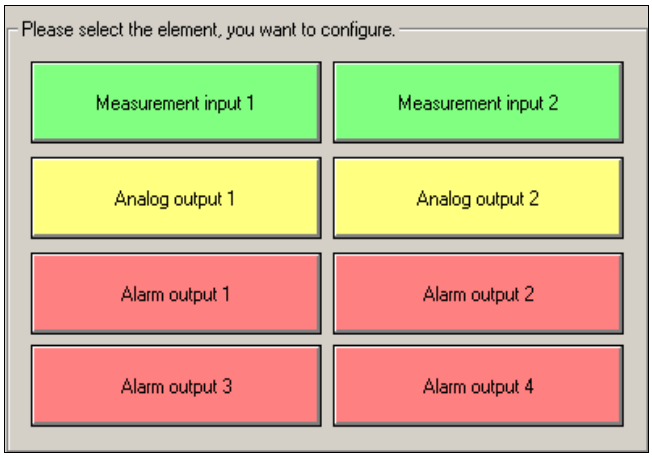
		Alarm outputs	Unit	Output Rel 1 (X2. 5...	Output Rel 2 (X2. 7...	Output Rel 3 (X2. 9-...	Output
M2240	AlDef	Alarmdefinition		0x00000000	0x00000000	0x00000000	0x00000

		Analog retransmis...	Unit	Output AO 1 (X2. 1- 2)	Output AO 2 (X2. 3- 4)
M2203	RANGE	Range	[mA]	0 - 0-20	0 - 0-20
M2204	LSc	Low Scale	[bar]	0.0	0.0
M2205	FSc	Full Scale	[bar]	500.0	500.0
M2206	Src	Signal source		0 - passive	0 - passive

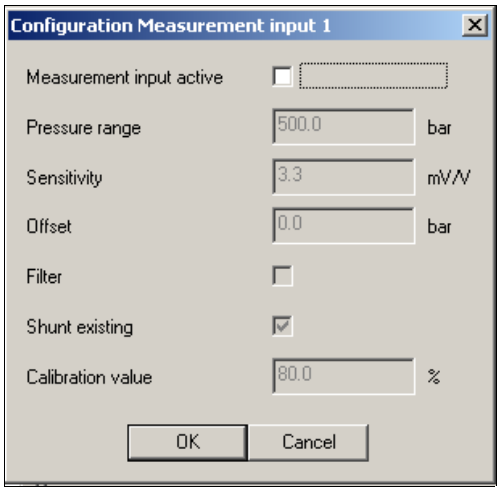
		System parameters	Unit	
M2220	LV1	Limit value 1	[bar]	0.0
M2221	ALSrc1	Signal source 1		0 - passive
M2222	LV2	Limit value 2	[bar]	0.0
M2223	ALSrc2	Signal source 2		0 - passive
M2224	LV3	Limit value 3	[bar]	0.0
M2225	ALSrc3	Signal source 3		0 - passive
M2226	LV4	Limit value 4	[bar]	0.0
M2227	ALSrc4	Signal source 4		0 - passive
M2228	LV5	Limit value 5	[bar]	0.0
M2229	ALSrc5	Signal source 5		0 - passive
M2230	LV6	Limit value 6	[bar]	0.0
M2231	ALSrc6	Signal source 6		0 - passive
M2232	LV7	Limit value 7	[bar]	0.0
M2233	ALSrc7	Signal source 7		0 - passive
M2234	LV8	Limit value 8	[bar]	0.0
M2235	ALSrc8	Signal source 8		0 - passive
M2236	Hyst	Hysteresis	[bar]	1.0

By Configurator

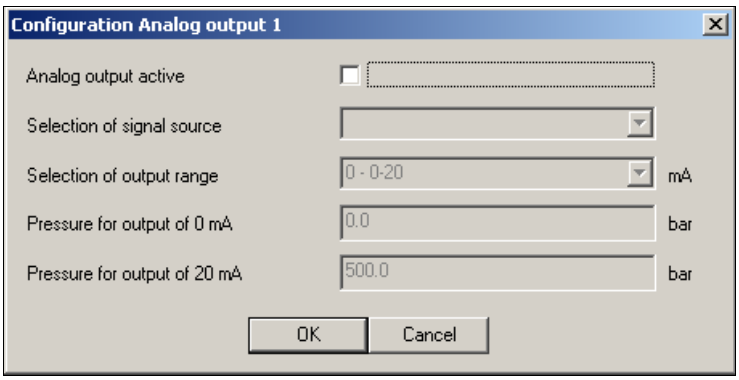
<View> <Project> Component MPI02 - Configurator



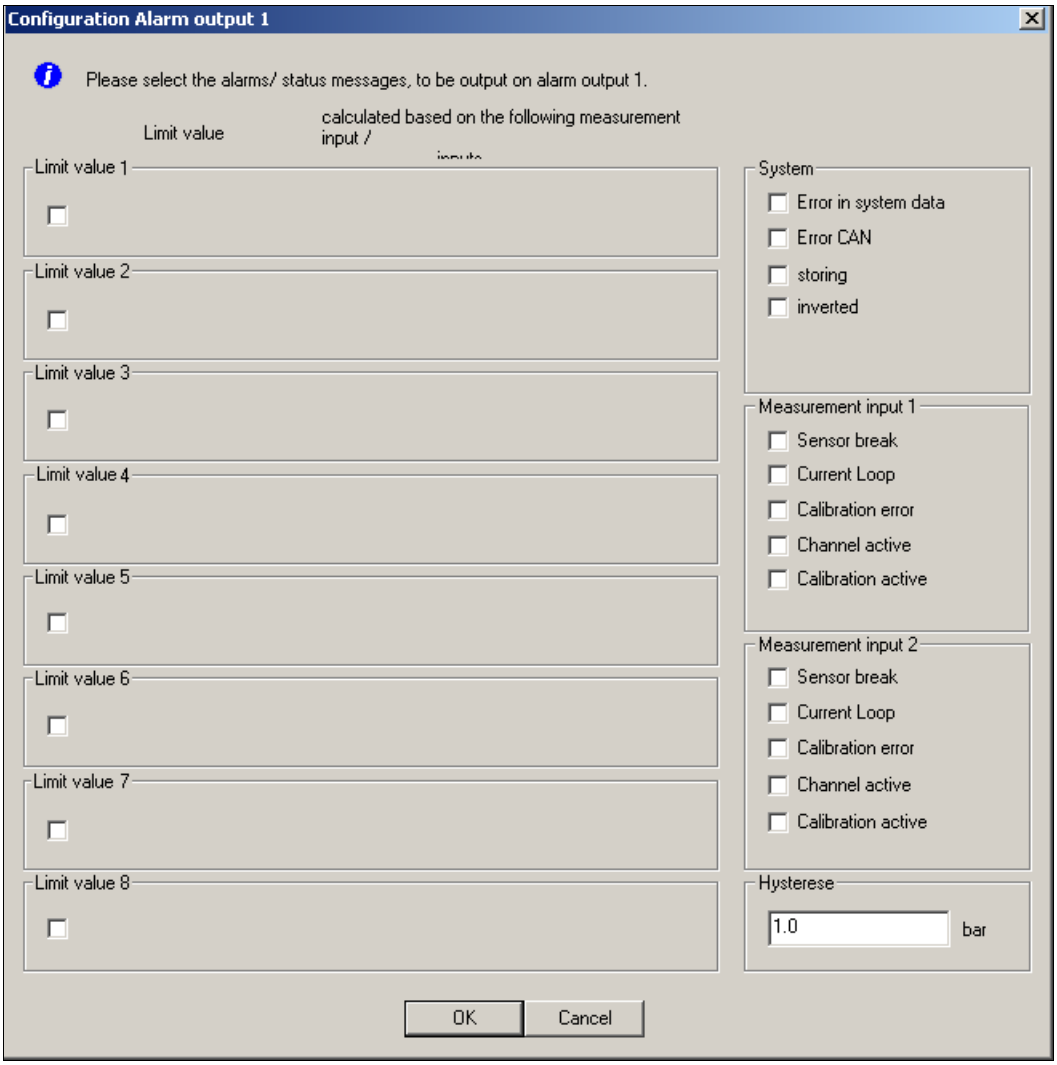
Measurement input 1 Also valid for measurement input 2



Analog Output 1 Also valid for analog output 2



Alarm output 1 Also valid for alarm output 2-4



4.4.4.1 Configure measurement input 1/2

The pressure transducer is connected to a measurement input. The standard specifications here must be adjusted to the technical data of the pressure transducer.

(See operating instructions Temperature Control System flexotemp® Parameter)

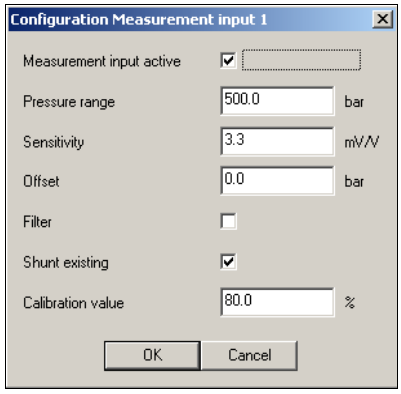
By **Parameter**

Measurement input 1 (input AI 1)

		Parameter	Unit	Input AI 2 (X1. 1- 6
M2210	PressRng	Pressure range	[bar]	500.0
M2211	Sensi	Sensitivity	[mV/V]	3.3
M2212	Shunt	Shunt existing		1 - On
M2213	CalV	Calibration value	[%]	80.0
M2214	Cha	Channel		0 - Passive
M2215	Filter	Filter		0 - Off
M2216	Offset	Offset	[bar]	0.0

By **Configurator**

Measurement input 1



4.4.4.2 Specify limit value and alarm output on relay

A total of 8 limit values can be defined and for each limit value

- monitoring of absolute pressure
- monitoring of differential pressure or
- no monitoring

can be specified.

Beside system alarms (e.g. error CAN, limit value reached, etc.), channel-/input specific alarms (sensor break on measurement input 1, etc.) can be output on 4 relays.

(See operating instructions Temperature Control System flexotemp® Parameter)

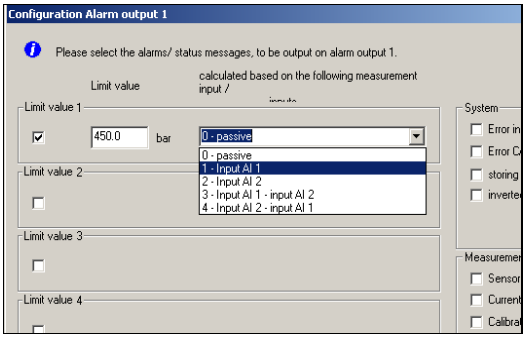
Limit value 1 is adjusted to 450 bar for measurement input 1 (input AI 1)

By **Parameter**

		System parameters	Unit	
M2220	LV1	Limit value 1	[bar]	450.0
M2221	ALSrc1	Signal source 1		M2221 ALSrc1
M2222	LV2	Limit value 2	[bar]	4 - Input AI 2 - input AI 1
M2223	ALSrc2	Signal source 2		0 - passive
M2224	LV3	Limit value 3	[bar]	1 - Input AI 1
M2225	ALSrc3	Signal source 3		2 - Input AI 2
M2226	LV4	Limit value 4	[bar]	3 - Input AI 1 - input AI 2
M2227	ALSrc4	Signal source 4		0 - passive
M2228	LV5	Limit value 5	[bar]	0.0
M2229	ALSrc5	Signal source 5		0 - passive
M2230	LV6	Limit value 6	[bar]	0.0
M2231	ALSrc6	Signal source 6		0 - passive
M2232	LV7	Limit value 7	[bar]	0.0
M2233	ALSrc7	Signal source 7		0 - passive
M2234	LV8	Limit value 8	[bar]	0.0
M2235	ALSrc8	Signal source 8		0 - passive
M2236	Hyst	Hysteresis	[bar]	1.0

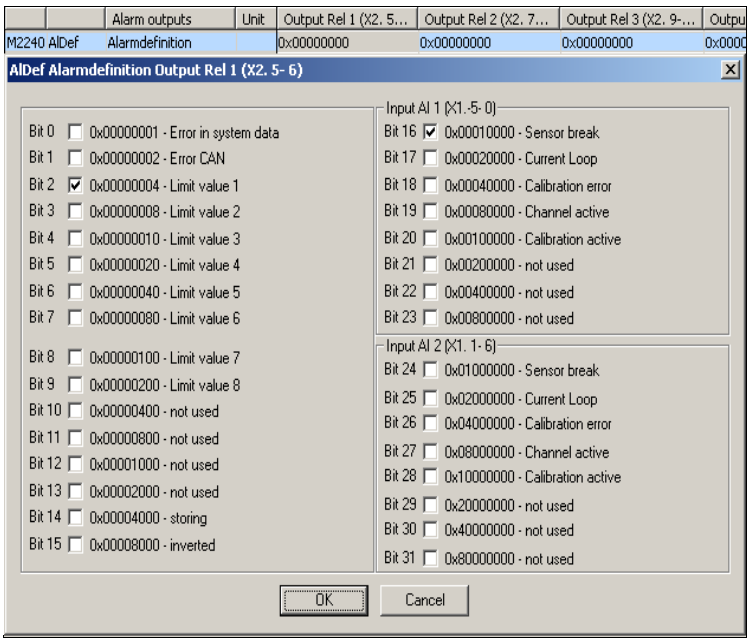
By **Configurator**

Alarm output 1



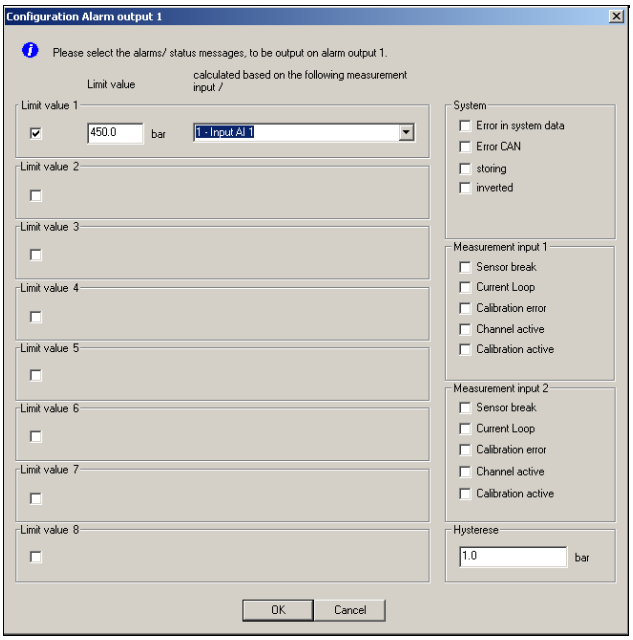
Alarm output on relay 1 for sensor break and limit value 1 reaches measurement input 1 (input AI 1).

By **Parameter**


Alarm outputs
Unit
Output Rel 1 (X2. 5...
Output Rel 2 (X2. 7...
Output Rel 3 (X2. 9-...
M2240 AlDef
Alarmdefinition
0x00000000
AlDef Alarmdefinition Output Rel 1 (X2. 5- 6)
Input AI 1 (X1.-5- 0)
Bit 0 0x00000001 - Error in system data
Bit 1 0x00000002 - Error CAN
Bit 2 0x00000004 - Limit value 1
Bit 3 0x00000008 - Limit value 2
Bit 4 0x00000010 - Limit value 3
Bit 5 0x00000020 - Limit value 4
Bit 6 0x00000040 - Limit value 5
Bit 7 0x00000080 - Limit value 6
Bit 8 0x00000100 - Limit value 7
Bit 9 0x00000200 - Limit value 8
Bit 10 0x00000400 - not used
Bit 11 0x00000800 - not used
Bit 12 0x00001000 - not used
Bit 13 0x00002000 - not used
Bit 14 0x00004000 - storing
Bit 15 0x00008000 - inverted
Bit 16 0x00010000 - Sensor break
Bit 17 0x00020000 - Current Loop
Bit 18 0x00040000 - Calibration error
Bit 19 0x00080000 - Channel active
Bit 20 0x00100000 - Calibration active
Bit 21 0x00200000 - not used
Bit 22 0x00400000 - not used
Bit 23 0x00800000 - not used
Input AI 2 (X1. 1- 6)
Bit 24 0x01000000 - Sensor break
Bit 25 0x02000000 - Current Loop
Bit 26 0x04000000 - Calibration error
Bit 27 0x08000000 - Channel active
Bit 28 0x10000000 - Calibration active
Bit 29 0x20000000 - not used
Bit 30 0x40000000 - not used
Bit 31 0x80000000 - not used
OK
Cancel

By **Configurator**

Alarm output 1



Sensor break (SB Sensor 1/2) and Current Loop (CL Analog output 1/2) are directly shown by the LED on the component. The status, that show the LED's of the relays (R1=A1.1, R2=A1.2, R3=A2.1, R4=A2.2), can be seen in the settings of the particular alarm output.

4.4.4.3 Configure analog output 1/2

In total 2 analog outputs can be configured, which output

- the absolute pressure
- the differential pressure

as standard signal I.

(See operating instructions Temperature Control System flexotemp® Parameter)

On analog output 1 a measurement input 1 (input AI 1) proportional analog signal of 0...20mA is output.

By **Parameter**

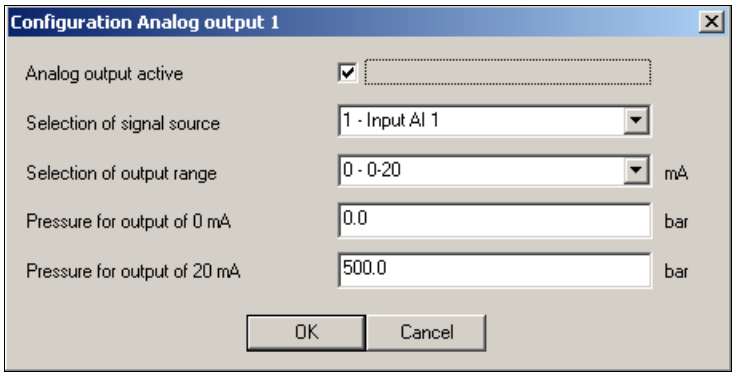
		Analog retransmis...	Unit	Output AO 1 (X2. 1- 2)	Ou
M2203	RANGE	Range	[mA]	0 - 0-20	0 -
M2204	LSc	Low Scale	[bar]	0.0	0.0
M2205	FSc	Full Scale	[bar]	500.0	500
M2206	Src	Signal source		M2206 Src Output AO 1 (X2....	

		System parameters	Unit
M2220	LV1	Limit value 1	[bar]
M2221	ALSrc1	Signal source 1	
M2222	LV2	Limit value 2	[bar]

4 - Input AI 2 - input AI 1
0 - passive
1 - Input AI 1
2 - Input AI 2
3 - Input AI 1 - input AI 2
OK

By **Configurator**

Analog Output 1



Is no analog output used, connect X2/1 with X2/2 and X2/3 with X2/4 and/or ignore the display of <Cur-rent Loop> see ↗Status I/O.

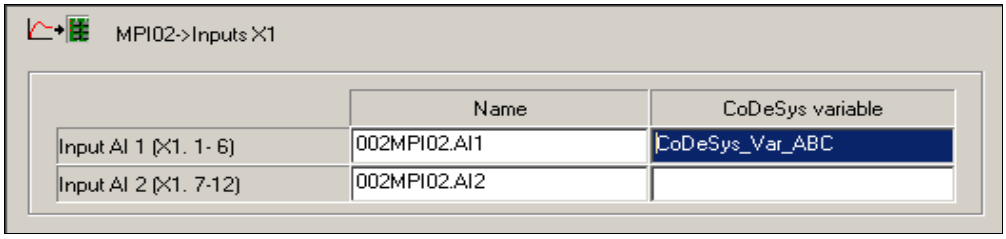
4.4.4.4 Inputs X1

By the inputs X1, the measurement inputs can be assigned to CoDeSys variables, which can be made available for a PLC programming by an export file as variable list.

(See operating instructions Project Setup and Configuration Tool flexotempMANAGER Operation)

Inputs X1

Measurement input 1/2 (input AI 1/2)



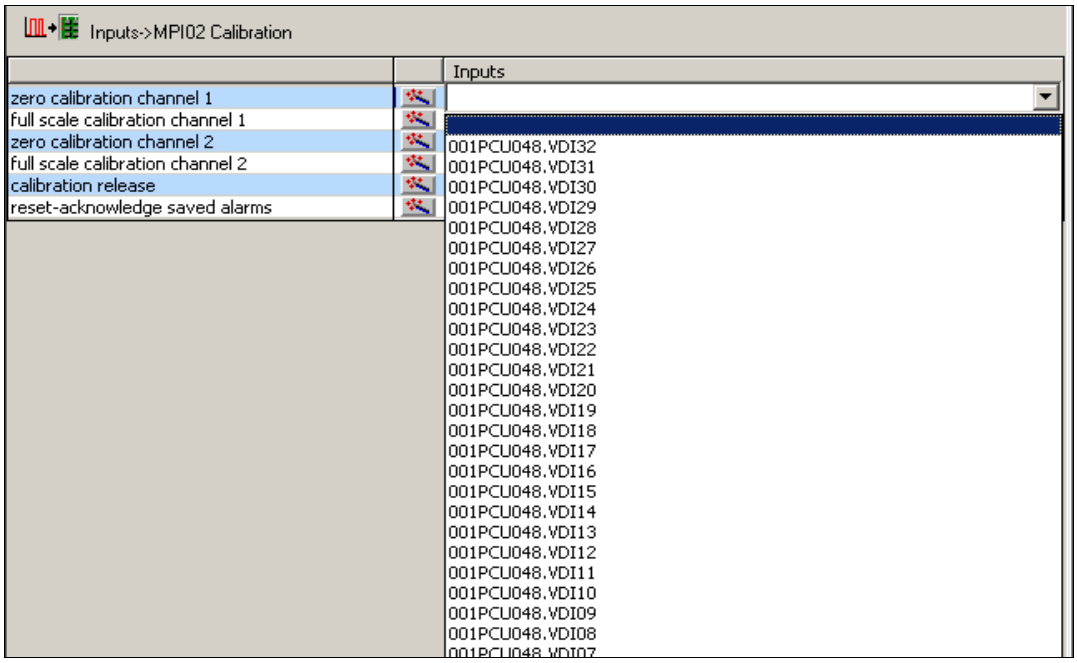
4.4.4.5 Calibration inputs

By calibration inputs the functions

- Zero calibration
- Full scale calibration
- Calibration release
- Reset-acknowledge stored alarms

can be combined with digital inputs and can control the components.

The available digital inputs in the configuration (here only VDI; otherwise project setup of DIO16CI necessary) are offered in a list for selection.



Is the calibration done by a digital input, the signal must be available for at least 2 s on this input (an edge is not sufficient).

4.5 Calibration of connected pressure transducer

After project setup and configuration and transfer of the defined settings to the controller, the calibration of the connected pressure transducers must be executed.

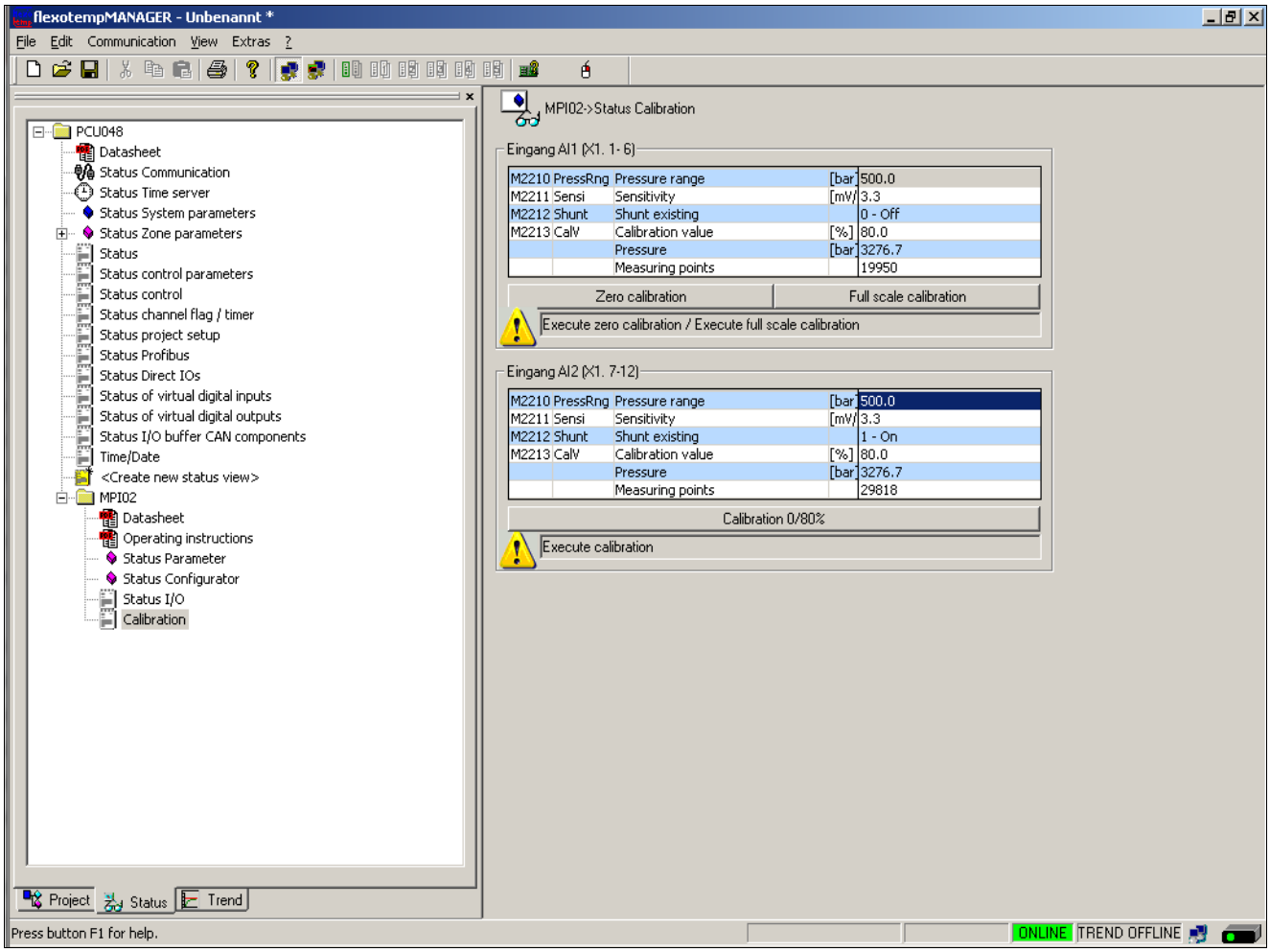
Change from |Project| to |Status| of component MPI02 in flexotempMANAGER.

Dependent on the parameter [M2212] Shunt existing are/is

- two calibration keys ([M2212] = OFF)
- one calibration key ([M2212] = ON)

shown.

Is only one key available, first the zero calibration is executed and then the full scale calibration after connection of the shunt by relay (pressure transducer 1 X1/Cal13/Cal14 and/or pressure transducer 1 X1/Cal23/Cal24).



After pressing of one of the keys, the function starts. After confirmation of the security query, that the function should be executed, the calibration is started.

In the display below the keys(s), the possible actions and/or messages to the status are shown.

	Execute zero calibration Execute full scale calibration Execute calibration	So far no calibration executed.
	<Calibration type>calibration not possible, due to measuring points outside value range.	For the selected calibration type, the value range (see <Number of measuring points>) is not correct. The display remains for about ca. 5 seconds.
	Check setting and calibration	At the check of the values set an error was detected. Check the values set (e.g., if [M2210] = 0)
	Sensor break	Please check
	<Calibration type> started	
	<Calibration type> running	
	<Calibration type> finished	
	<No display>	Calibration has been successfully carried out. A restart is possible, but not necessary.

4.6 Status

Component-relevant parameters, in-/outputs, and measured readings on the components as well as alarm status are displayed with their status. The display is updated consecutively, as long as the communication is <Online>.

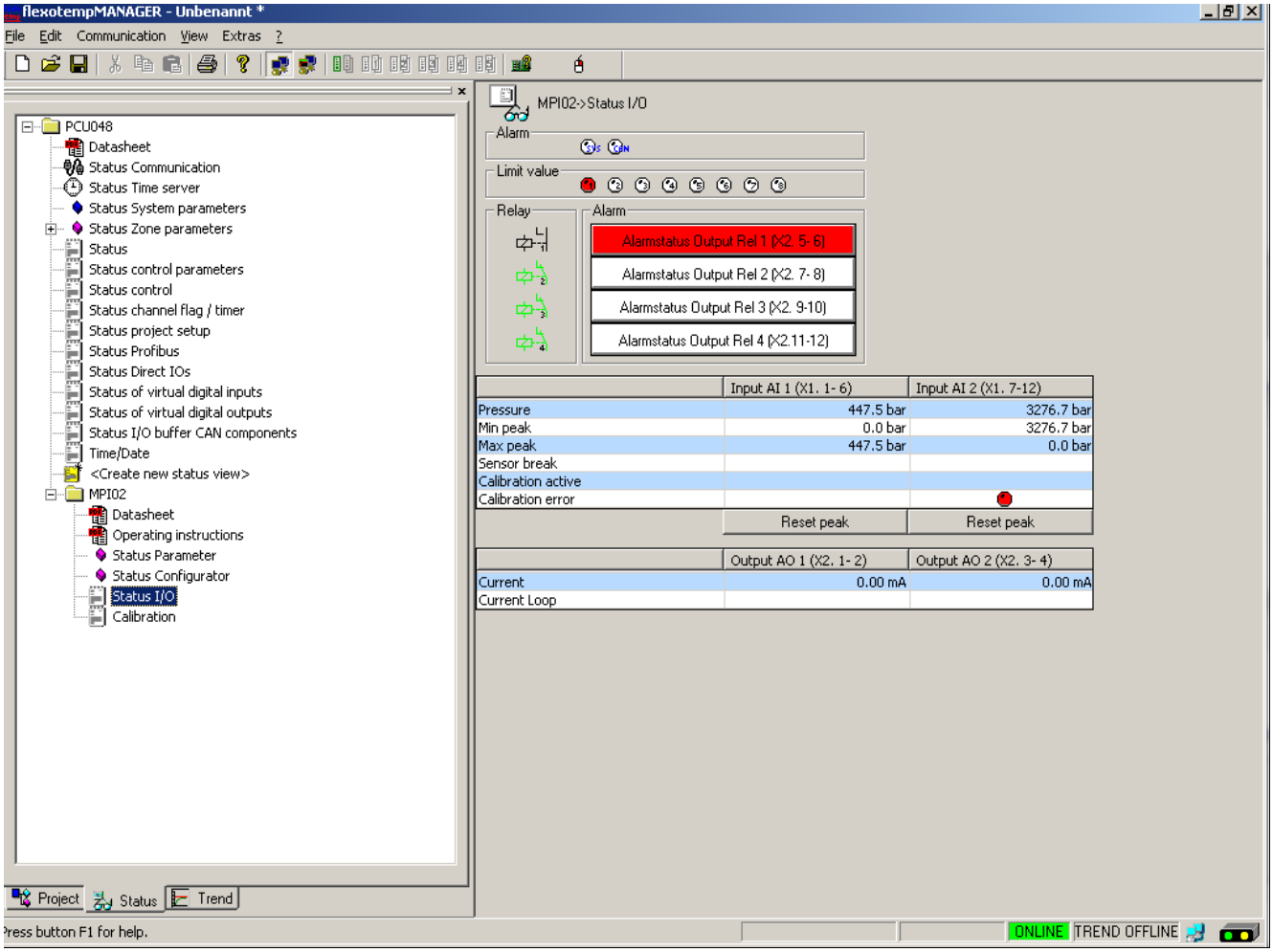
Contrary to the project, where the change of parameters must be explicitly written to the controller and/or read from the controller, in status accesses directly online the parameters in the controller (see operating instructions Project Setup and Configuration Tool flexotempMANAGER Operation chapter Status).

4.6.1 Status Parameter / Configurator

On the status page under <Status Parameter> and <Status Configurator>, the parameters specified for the controller can be seen and set. The display is like described in chapter ↗Configure component.

4.6.2 Status I/O

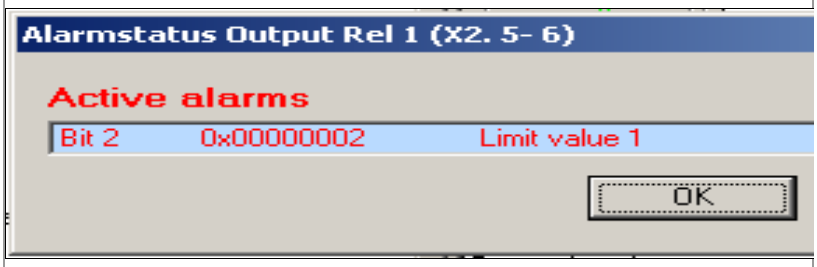
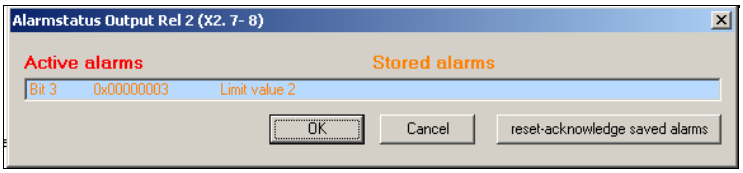
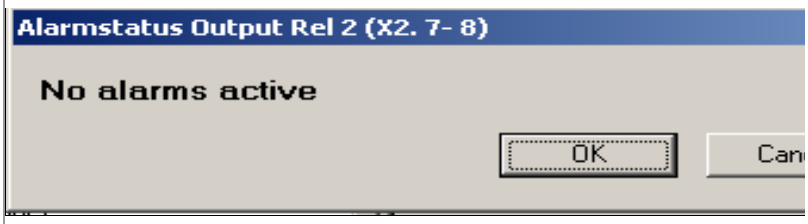
On the status page under <Status I/O>, the in-/outputs, measurements and alarm status of the controller can be seen.



Alarm	LED display SYS		red: alarm active
			A check sum error in the system data has occurred in the EEPROM.
			white: no alarm
	LED display CAN		red: alarm active
			Component is not in pre-operational mode.
			white: no alarm

Limit value	LED display for limit value 1...8		red: alarm active
			Is the specified limit value reached, see chapter ↗Specify limit value and alarm output on relay (limit value), it is signalized.
			white: no alarm

Relay	Relay symbol 1...4		black: relay contact open
			green: relay contact closed

<table>
<tr><td rowspan="11">Alarm status
Output relay 1...4</td><td rowspan="2">Key</td><td rowspan="2"> </td><td>red: persistent alarm</td></tr>
<tr><td>Signalizes, that at least one alarm is persistent.</td></tr>
<tr><td>Press red key</td><td colspan="2">  </td></tr>
<tr><td colspan="3">Plain text message, which persistent alarm is concerned.</td></tr>
<tr><td colspan="3">  </td></tr>
<tr><td colspan="3">Plain text message, which stored alarm is concerned.</td></tr>
<tr><td colspan="3">A stored alarm can be reset/acknowledged, what removes the alarm from the display.</td></tr>
<tr><td rowspan="2">Key</td><td rowspan="2"> </td><td>white: no persistent alarm</td></tr>
<tr><td></td></tr>
<tr><td>Press white key</td><td colspan="2">  </td></tr>
<tr><td rowspan="2">LED's directly on component</td><td rowspan="2"> </td><td></td><td>LED yellow: alarm active</td></tr>
<tr><td></td><td>LED off: no alarm</td></tr>
</table>

For settings, see chapter ↗Specify limit value and alarm output on relay (alarm output)

Pressure	Numerical value		Current pressure value [unit bar]
Min Peak	Numerical value		Smallest pressure value occurred [unit bar]
Max Peak	Numerical value		Biggest pressure value occurred [unit bar]
Sensor break	LED display		red: alarm active
			Is the specified limit value reached, see chapter ↗Specify limit value and alarm output on relay (limit value), it is signalized.
			No display: no alarm
			LED's directly on component LED yellow: alarm active, LED off: no alarm
Calibration active	LED display		green: calibration active
			No display: no calibration
Calibration error	LED display		red: alarm active Reason: Calibration not executed (e.g. due to wrong settings see ↗Calibration of connected pressure transducer)
			No display: no alarm

Peak Reset	Key		Min Peak and Max Peak are reset to current pressure value.

Current	Numerical value		Pressure value proportional current value [unit mA]; Settings see chapter ↗Configure analog output 1/2
Sensor break	LED display		red: alarm active
			No display: no alarm

			LED's directly on component LED yellow: alarm active, LED off: no alarm

5 Appendix

5.1 Ordering designations

Order number	Article description
025 057	Melt Pressure Input flexotemp® MPI 02

5.2 Version History

Version	Date	Changes
1.00.03	4/30/2014	In detail the following amendments were made: ▪ Wizard step 5 Data transfer in project setup/device, when existing
1.00.02	11/3/2011	In detail the following amendments were made: ▪ Figures updated
1.00.01	10/28/2011	In detail the following amendments were made: ▪ Calibration by digital input ▪ Status calibration updated
1.00.00	04/09/2010	First edition Valid for flexotempMANAGER software version 1.02.00
		PSG Plastic Service GmbH Pirnaer Straße 12-16 68309 Mannheim Germany Tel. +49 621 7162 0 Fax +49 621 7162 162 www.psg-online.de info@psg-online.de